Contents of Vol. 35

Vol. 35, No. 1

A numerical solution for the flow of dilute fiber suspensions through an axisymmetric contraction
K. Chiba and K. Nakamura (Osaka, Japan) and D.V. Boger (Parkville, Vic., Australia) . . . 1

A rate-dependent thermodynamical model for rapid granular flows
G. Ahmadi and S. Abu-Zaid (Potsdam, NY, U.S.A.) 15

A comparison of the drag coefficients of spheres translating in corn-syrup-based and polybutene-based Boger fluids
C. Chmielewski, K.L. Nichols and K. Jayaraman (East Lansing, MI, U.S.A.) 37

Generalized constitutive equation for polymeric liquid crystals. Part 1. Model formulation using the Hamiltonian (Poisson bracket) formulation
B.J. Edwards and A.N. Beris (Newark, DE, U.S.A.), and M. Grmela (Montreal, Que., Canada) 51

Short wave instabilities resulting from memory slip
M. Renardy (Blacksburg, VA, U.S.A.) 73

Short Communication

Comparison of the behaviour of filaments of xanthan solutions with that of filaments of polyacrylamide solutions
W.M. Jones (Aberystwyth, Dyfed, U.K.) 77

Calendar 83

Vol. 35, Nos. 2 + 3

Special Issue: Proceedings of an International Conference on Extensional Flow, Combloux, France, March 20th–23rd, 1989

An overview of the project M1
T. Sridhar (Clayton, Vic., Australia) 85

Preparation and some properties of M1 and its constituents
D.A. Nguyen and T. Sridhar (Clayton, Vic., Australia) 93

Measurements of $N_1 - N_2$ and η in steady shear flow and η', η'', and birefringence in small-strain oscillatory shear for the polyisobutylene solution M1
M.L. Chirinos, P. Crain, A.S. Lodge, J.L. Schrag and J. Yaritz (Madison, WI, U.S.A.) . . . 105

The shear and extensional flow properties of M1
D.M. Binding, D.M. Jones and K. Walters (Aberystwyth, Gt. Britain) 121

Rheological characterization of the fluid M1 and of its components
H.M. Laun and R. Hingmann (Ludwigshafen/Rhein, F.R.G.) 137

The shear flow properties of M1
N.E. Hudson and J. Ferguson (Glasgow, Gt. Britain) 159

The dynamic moduli and the first normal stress difference of the test fluid M1: a combination of results of measurements by various research groups
K. te Nijenhuis (Delft, The Netherlands) 169

Glass transition temperature, specific gravity, viscosity and viscoelastic properties of the test fluid M1
K. te Nijenhuis and H.J. van Benschop (Delft, The Netherlands) 179

Rheological properties of a polyisobutylene in a kerosene/polybutene mixture in simple shear flow
Ph. Steiert and C. Wolff (Mulhouse, France) 189

The extensional properties of M1 obtained from the Carri-Med elongational viscometer
J. Ferguson and N.E. Hudson (Glasgow, Gt. Britain) 197

Experimental results and constitutive modelling of the extensional flow of M1
D.A. Nguyen (Clayton, Vic., Australia), R.K. Gupta (Amherst, NY, U.S.A.) and T. Sridhar (Clayton, Vic., Australia) 207

Liquid stretching using a falling cylinder
J.E. Matta and R.P. Tytus (Aberdeen, MD, U.S.A.) 215

Stagnation-point extensional flow behaviour of M1
A.J. Müller, J.A. Odell and J.P. Tatham (Bristol, Gt. Britain) 231

The horizontal stretching of test liquid M1
D.R. Oliver (Birmingham, Gt. Britain) 251

The extensional properties of M1 obtained from the stretching of a filament by a falling pendant drop
W.M. Jones (Aberystwyth, Gt. Britain), N.E. Hudson and J. Ferguson (Glasgow, Gt. Britain) 263

Mechanical and optical responses of the M1 fluid subject to stagnation point flow
T. Schweizer, K. Mikkelsen, C. Cathey (Piscataway, NJ, U.S.A.) and G. Fuller (Stanford, CA, U.S.A.) 277

Climbing constant, second-order correction of Trouton's viscosity, wave speed and delayed die swell for M1
H.H. Hu, O. Riccius, K.P. Chen, M. Arney and D.D. Joseph (Minneapolis, MN, U.S.A.) .. 287

Crossflow of elastic liquids through arrays of cylinders
C. Chmielewski, C.A. Petty and K. Jayaraman (East Lansing, MI, U.S.A.) 309

Creeping motion of spheres in fluid M1
V. Tirtaatmadja, P.H.T. Uhlherr and T. Sridhar (Clayton, Vic., Australia) 327

Circular entry flows of fluid M1
D.V. Boger and R.J. Binnington (Parkville, Vic., Australia) 339

Flow birefringence studies in transient flows of a two roll mill for the test-fluid M1
E. Geffroy (Pasadena, CA, U.S.A.) and L.G. Leal (Santa Barbara, CA, U.S.A.) 361

Weissenberg effect of the fluid M1. Study by an optical method
D. Dupuis (Mulhouse, France) 401

Flow of test fluid M1 in corrugated tubes
D.F. James (Toronto, Ont., Canada), N. Phan-Thien, M.M.K. Khan (Sydney, NSW, Australia), A.N. Beris and S. Pilitsis (Newark, DE, U.S.A.) 405

Compressive flow of the fluid M1
J. Rajaiah, R.K. Gupta (Buffalo, NY, U.S.A.) and T. Sridhar (Clayton, Vic., Australia) . . . 413

A converging channel rheometer for the measurement of extensional viscosity
D.F. James, G.M. Chandler (Toronto, Ont., Canada) and S.J. Armour (Ralston, Alb., Canada) 421

Measurement of the extensional viscosity of M1 in a converging channel rheometer
D.F. James, G.M. Chandler (Toronto, Ont., Canada) and S.J. Armour (Ralston, Alb., Canada) 445

Modelling of fluid M1 using multiple-relaxation-time constitutive equations
M.S. Chai and Y.L. Yeow (Parkville, Vic., Australia) 459

Calendar 471

Subject Index Vol. 35 473

Author Index Vol. 35 475

Contents of Vol. 35 477